

## PATENT ABSTRACTS OF JAPAN

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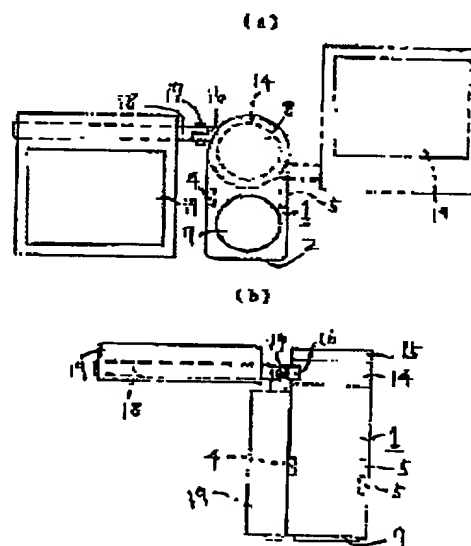
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 (72)Inventor : TAKAHASHI KOUSEI

(54) VIDEO CAMERA

(57)Abstract:

PURPOSE: To prevent the top and bottom of an image projected on a monitor from being inverted even at the time of inverting the top and bottom of a video camera main body by making an image pickup part rotatable with the optical axis of the lens of a lens part as an axis against a grip part.

CONSTITUTION: A monitor part 19 is used also as the rotating position adjusting member of an image pickup part 14, fixed to the image pickup part 14 in the direction of rotation of the image pickup part 14, and fixed to the image pickup part 14 so as to be protruded from a video camera main body 1. Therefore, at the time of rotating the monitoring part 19 with the center of rotation of the image pickup part 14 as the axis, the image pickup part 4 is rotated. At the time of rotating the monitoring part 19 to a position indicated by alternate long and two short dashes lines in (a), the image pickup part 14 is rotated along 180° and the top and bottom of the image pickup part 14 against a grip part 2 is inverted.



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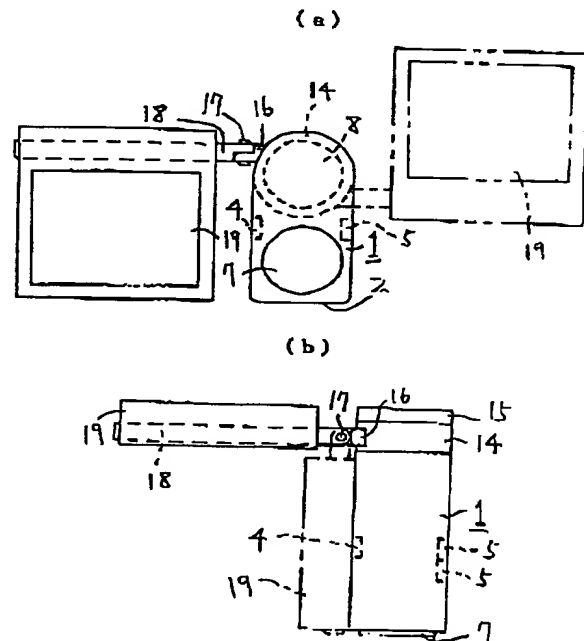
電機株式会社内

(54)【発明の名称】 ビデオカメラ

(57)【要約】

【目的】 仮にビデオカメラ本体の天地を逆にしても、モニタに映し出される像の天地が逆にならないようにすることができ、また、このビデオカメラがVTR一体型のものであれば、記録して再生された画像の天地も、モニタの場合と同様にして逆にならないようにすることができる。

【構成】 グリップ部2に対して、レンズ部15のレンズの光軸を軸として撮像部14を回動可能にした。前記撮像部14の前記した回動の方向にはこの撮像部14と固定の関係になるように、しかも前記グリップ部2、レンズ部15及び撮像部14等よりなるビデオカメラ本体1より突出するように前記撮像部14に取り付けられた、撮像部14の回動位置調整用操作部材兼用のモニタ19を有する。このモニタ19は軸18に回動可能に設けられ、この軸18は支軸17によって前記撮像部14に回動可能に取り付けられている。



## 【特許請求の範囲】

【請求項1】 グリップ部、レンズ部及び撮像部等を備えたビデオカメラにおいて、前記グリップ部に対して、前記レンズ部のレンズの光軸を軸として前記撮像部を回動可能にしたことを特徴とするビデオカメラ。

【請求項2】 前記撮像部の前記した回動の方向にはこの撮像部と固定の関係になるように、しかも前記グリップ部、レンズ部及び撮像部等よりなるビデオカメラ本体より突出するように前記撮像部に取り付けられた、撮像部の回動位置調整用操作部材を備えたことを特徴とする請求項1記載のビデオカメラ。

【請求項3】 前記回動位置調整用操作部材がモニタを兼用していることを特徴とする請求項2記載のビデオカメラ。

【請求項4】 前記撮像部の前記した回動の中心軸と平行な第1の直線に対して直交する第2の直線を中心軸として前記モニタを回動可能に設けたことを特徴とする請求項3記載のビデオカメラ。

【請求項5】 前記撮像部と前記モニタとの結合部は、前記撮像部の前記した回動の中心軸と平行な第1の直線に対して直交する第3の直線を中心軸として回動し得るように構成し、

これにより、前記モニタの画面を垂直に貫通する第4の直線方向が、前記第1の直線と平行な方向から直交する方向になるように、前記モニタが前記ビデオカメラ本体に対して回動され得るようにした請求項3記載のビデオカメラ。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】 この発明は、ハンディタイプのビデオカメラに関するものである。

## 【0002】

【従来の技術】 従来、この種のビデオカメラは、レンズ部、CCD等の撮像素子を含む撮像部、及びグリップ部等を有する。前記撮像部は前記グリップ部と固定の関係にあり、また前記グリップ部は前記レンズ部を水平に向けたときの、下方へ突出した位置に配設されている。

【0003】 これを図3の概略図を用いて再度説明する。図3はビデオカメラのレンズ部が被写体に向かう面を正面としたときの、背面を示すものである。図において、1はビデオカメラ本体であり、この本体1はグリップ部2、撮像部3及びこの撮像部3の中心と光軸が一致するように配設されたレンズ部（図示せず）等を有する。4は撮影開始用の操作釦、5はズーム調整用の操作釦であり、このビデオカメラを把持する際には、親指が操作釦4を、また人差指と中指が操作釦5を操作し得るように、符号6で示す円の外周側を手の平によりほぼ覆うようにする。ちなみに、符号6は充電可能な電池を収納する部位の蓋7の縁部を示している。8は前記撮像部3

の撮像面であり、破線矢印は被写体（図示せず）の像である。9は説明の都合上付したマークであり、撮像面8の天の方向を示している。このビデオカメラでは、前記撮像部3は前記グリップ部2と固定の関係にあり、また前記グリップ部2は前記レンズ部を水平に向けたときの、下方へ突出した位置に配設されている。

【0004】 前記撮像部3で撮像された被写体の像はモニタ10に映し出される。11は説明の都合上付したマークであり、モニタ10の天の方向を示している。尚、前記ビデオカメラ本体1とモニタ10とは電線12により電気的にのみ接続されているが、ビデオカメラ本体とモニタとを機械的に結合したものもある。

## 【0005】

【発明が解決しようとする課題】 さて、従来のビデオカメラにより特殊な撮影、例えば撮影レンズの位置を床面にできるだけ近い位置にしたい場合には、グリップ部2が邪魔になるので、これを避けるべく、ビデオカメラの天地を逆に、または横置きにすることが考えられる。これを図4の概略図を用いて再度説明する。図4は前記図3で説明したビデオカメラの天地を逆にして、前記レンズ部を床13に接触させた状態を示している。この状態で撮影をすると、確かに床面に近い位置からの撮影が可能になるが、モニタ10に映し出される像の天地が逆になり、矢印が下向きになる。ビデオカメラがVTR一体型の場合には、記録して再生された像の天地も、モニタの場合と同様にして逆になる。

【0006】 この発明は上記の欠点を除去するものであり、仮にビデオカメラ本体の天地を逆にしても、モニタに映し出される像の天地が逆にならないようにすることができ、ビデオカメラを提供することを目的とするものである。このビデオカメラがVTR一体型のものであれば、記録して再生された像の天地も、モニタの場合と同様にして逆にならないようにすることができる。

## 【0007】

【課題を解決するための手段】 上記の課題を解決するための、この発明のビデオカメラは、グリップ部、レンズ部及び撮像部等を備えたビデオカメラにおいて、前記グリップ部に対して、前記レンズ部のレンズの光軸を軸として前記撮像部を回動可能にしたことを特徴とするものである。前記撮像部の前記した回動の方向にはこの撮像部と固定の関係になるように、しかも前記グリップ部、レンズ部及び撮像部等よりなるビデオカメラ本体より突出するように前記撮像部に取り付けられた、撮像部の回動位置調整用操作部材を備えてもよいし、更に、前記回動位置調整用操作部材がモニタを兼用するものであってもよい。また、前記撮像部の前記した回動の中心軸と平行な第1の直線に対して直交する第2の直線を中心軸として前記モニタを回動可能に設けてもよい。更に、前記撮像部と前記モニタとの結合部は、前記撮像部の前記した回動の中心軸と平行な第1の直線に対して直交する第

[0008]

【0009】

【0012】また、前記モニタ19は前記撮像部14の前記した回動の中心軸と平行な第1の直線に対して直交

【００１３】この発明のビデオカメラは、ＶＴＲ一体型とすることもできる。

【0014】

20 【発明の効果】以上説明したように、この発明によれば、仮にビデオカメラ本体の天地を逆にしても、モニタに映し出される像の天地が逆にならないようにすることができ、また、このビデオカメラがVTR一体型のものであれば、記録して再生された画像の天地も、モニタの場合と同様にして逆にならないようにすることができる。

【図面の簡単な説明】

【図 1】この発明の一実施例を示すものであり、(a) は概略背面図、(b) は概略平面図である。

【図2】この発明の作用を説明するのに用いる概略背面図である。

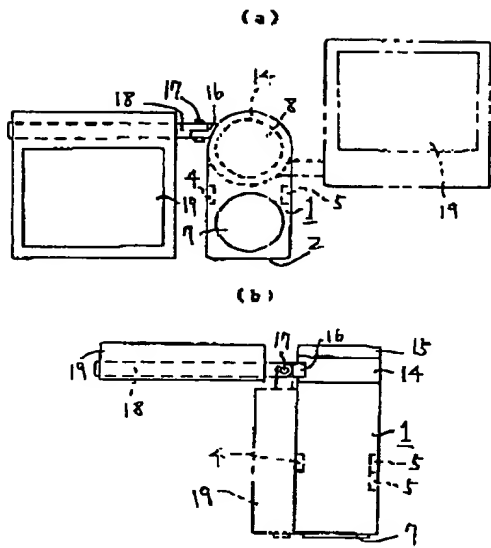
【図3】従来のものを説明するための概略背面図である。

【図4】従来のものを説明するための概略背面図である。

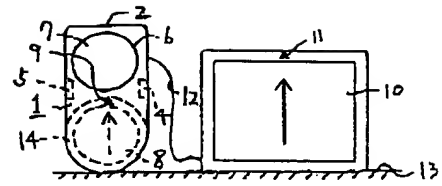
【符号の説明】

- 1 ビデオカメラ本体
- 2 グリップ部
- 8 撮像面
- 13 床
- 14 撮像部
- 15 レンズ部
- 16 突出部
- 17 支軸
- 18 軸
- 19 モニタ

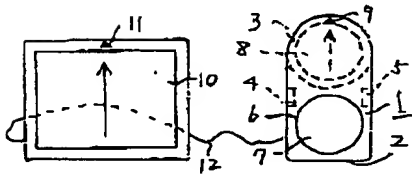
【図1】



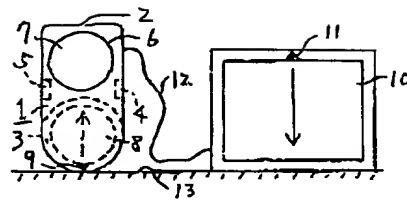
【図2】



【図3】



【図4】



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CLAIMS

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[Claim(s)]

[Claim 1] The video camera characterized by making said image pick-up section rotatable centering on the optical axis of the lens of said lens section to said grip section in the video camera equipped with the grip section, the lens section, the image pick-up section, etc.

[Claim 2] The video camera according to claim 1 characterized by having the operating member for rotation justification of the image pick-up section attached in said image pick-up section so that it might become the relation between this image pick-up section and immobilization and might project from the body of a video camera which moreover consists of said clip section, the lens section, the image pick-up section, etc. in the direction of rotational which said image pick-up section described above.

[Claim 3] The video camera according to claim 2 characterized by said operating member for rotation justification making the monitor serve a double purpose.

[Claim 4] The video camera according to claim 3 characterized by forming said monitor rotatable by making into a medial axis the 2nd straight line which intersects perpendicularly to the 1st straight line parallel to the medial axis of the rotation which said image pick-up section described above.

[Claim 5] The bond part of said image pick-up section and said monitor is constituted so that the 3rd straight line which intersects perpendicularly to the 1st straight line parallel to the medial axis of the rotation which said image pick-up section described above may be rotated as a medial axis. By this The video camera according to claim 3 it was made for said monitor to rotate to said body of a video camera so that the direction of the 4th straight line which penetrates the screen of said monitor perpendicularly might become in the direction which intersects perpendicularly from a direction parallel to said 1st straight line.

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to a handy type video camera.

[0002]

[Description of the Prior Art] Conventionally, this kind of video camera has the image pick-up section containing image sensors, such as the lens section and CCD, the grip section, etc. Said image pick-up section is in the relation between said grip section and immobilization, and said grip section is arranged in the location projected to the lower part when turning said lens section horizontally.

[0003] This is again explained using the schematic diagram of drawing 3. Drawing 3 shows the tooth back when using as a transverse plane the field where the lens section of a video camera faces to a photographic subject. In drawing, 1 is a body of a video camera and this body 1 has the lens section (not shown) arranged so that the grip section 2, the image pick-up section 3, and the core and optical axis of this image pick-up section 3 might be in agreement. In case it is an operating button for photography initiation in 4, and an operating button for zoom adjustment in 5 and this video camera is grasped, it is made \*\* which covers mostly the periphery side of the circle shown with a sign 6 by the palm so that the thumb may operate an operating button 4 and a forefinger and the middle finger can operate an operating button 5. Incidentally, the sign 6 shows the edge of the lid 7 of the part which contains the cell which can be charged. 8 is the image pick-up side of said image pick-up section 3, and a broken-line arrow head is the image of a photographic subject (not shown). 9 is the mark attached on account of explanation, and shows the direction of the heavens of the image pick-up side 8. In this video camera, said image pick-up section 3 is in the relation between said grip section 2 and immobilization, and said grip section 2 is arranged in the location projected to the lower part when turning said lens section horizontally.

[0004] The image of the photographic subject picturized in said image pick-up section 3 is projected on a monitor 10. 11 is the mark attached on account of explanation, and shows the direction of the heavens of a monitor 10. In addition, said body 1 of a video camera and monitor 10 have some which combined the body of a video camera, and the monitor mechanically, although chisel connection is electrically made with the electric wire 12.

[0005]

[Problem(s) to be Solved by the Invention] Now, since the grip section 2 becomes obstructive to make the location of special photography, for example, a taking lens, into the location possible nearest to a floor line with the conventional video camera, it is possible [ it ] to make the top and bottom of a video camera reverse every width in order to avoid this. This is again explained using the schematic diagram of drawing 4. Drawing 4 makes reverse the top and bottom of the video camera explained by said drawing 3, and shows the condition of having contacted said lens section to the floor 13. Although the photography from the location near a floor line to be sure will be attained if a photograph is taken in this condition, the top and bottom of the image projected on a monitor 10 become reverse, and an arrow head becomes downward. When a video camera is VTR one apparatus, the top and bottom of the image recorded and reproduced as well as the case of a monitor become reverse.

[0006] This invention removes the above-mentioned fault and it aims at offering the video camera the top and bottom of the image which projects the top and bottom of the body of a video camera on a monitor even if reverse can be prevented from becoming reverse temporarily. If this video camera is the thing of VTR one apparatus, the top and bottom of the image recorded and reproduced can also be prevented from becoming



reverse like the case of a monitor.

[0007]

[Means for Solving the Problem] The video camera of this invention for solving the above-mentioned technical problem is characterized by making said image pick-up section rotatable centering on the optical axis of the lens of said lens section to said grip section in the video camera equipped with the grip section, the lens section, the image pick-up section, etc. you may have the operating member for rotation justification of the image pick-up section attached in said image pick-up section towards said rotation of said image pick-up section carried out so that it may become the relation between this image pick-up section and immobilization and may project from the body of a video camera which moreover consists of said clip section, the lens section, the image pick-up section, etc., and said operating member for rotation justification may make a monitor serve a double purpose further. Moreover, said monitor may be formed rotatable by making into a medial axis the 2nd straight line which intersects perpendicularly to the 1st straight line parallel to the medial axis of the rotation which said image pick-up section described above. Furthermore, the bond part of said image pick-up section and said monitor It constitutes so that the 3rd straight line which intersects perpendicularly to the 1st straight line parallel to the medial axis of the rotation which said image pick-up section described above may be rotated as a medial axis. By this You may make it said monitor rotate to said body of a video camera so that the direction of the 4th straight line which penetrates the screen of said monitor perpendicularly may become in the direction which intersects perpendicularly from a direction parallel to said 1st straight line.

[0008]

[Function] By rotating the image pick-up section 14, it cannot be concerned with the location of said grip section 2, but the top and bottom of the image reflected in a monitor 10 can be made in agreement [ to said grip section 2 ] with the top and bottom of a photographic subject in the video camera of this invention constituted as mentioned above so that it may sketch also in drawing 2 . In addition, in drawing 2 , the thing of the same sign as said drawing 3 and drawing 4 shows the same thing.

[0009]

[Example] Below, one example of this invention is explained about drawing 1 . A tooth back when drawing 1 (a) uses as a transverse plane the field where the lens section of a video camera faces to a photographic subject is shown, and (b) shows a flat surface. In this drawing, since the thing of the same sign as said drawing 2 shows the same thing, that detailed explanation is omitted. In drawing 1 , 1 is a body of a video camera and this body 1 has the lens section 15 grade arranged so that the grip section 2, the image pick-up section 14, and the core and optical axis of this image pick-up section 14 might be in agreement. The operating button for photography initiation in 4 and 5 are the operating buttons for zoom adjustment. The optical axis of the lens of said lens section 15 is attached in said image pick-up section 14 rotatable as a shaft to said body 1 of a video camera containing said grip section 2. Said lens section 15 may have relation between the image pick-up section 14 and immobilization, and may have relation between the grip section 2 and immobilization.

[0010] 16 is the lobe fixed to the peripheral face of said image pick-up section 14, and the shaft 18 is attached in this lobe 16 rotatable by the pivot 17. The monitor 19 is attached in this shaft 18 rotatable.

[0011] In the video camera constituted as mentioned above, it is attached in said image pick-up section 14 so that said monitor 19 may make the member for rotation justification of the image pick-up section 14 serve a double purpose, and may become the relation between this image pick-up section 14 and immobilization in the direction of rotational which said image pick-up section 14 described above and it may moreover project from said body 1 of a video camera. Therefore, said image pick-up section 14 rotates by rotating this monitor 19 centering on the core of rotation of said image pick-up section 14. By rotating said monitor 19 in the location shown according to the two-dot chain line of (a), the image pick-up section 14 also rotates for 180 degrees, and the top and bottom of the image pick-up section 14 to the grip section 2 become reverse.

[0012] Moreover, since said monitor 19 is formed rotatable centering on said shaft 18 by making into a medial axis the 2nd straight line which intersects perpendicularly to the 1st straight line parallel to the medial axis of the rotation which said image pick-up section 14 described above, the image of a monitor 19 can be seen even from the upper part of the body 1 of a video camera, or a lower part. The bond part of said image pick-up section 14 and said monitor 19, i.e., the bond part of a lobe 16 and a shaft 18, furthermore, by said pivot 17 Since it is constituted so that the 3rd straight line which intersects perpendicularly to the 1st straight line parallel to the medial axis of the rotation which said image pick-up section 14 described above may be rotated as a medial axis So that the direction of the 4th straight line which penetrates the screen of said monitor 19

perpendicularly may become in the direction which intersects perpendicularly from a direction parallel to said 1st straight line by this That is, it may rotate to said body 1 of a video camera so that said monitor 19 may become the location shown according to a two-dot chain line from the location shown as the continuous line of (b). When not using this video camera, a video camera can be changed into a compact condition by rotating a monitor 19 in the location shown according to said two-dot chain line.

[0013] The video camera of this invention can also be made into VTR one apparatus.

[0014]

[Effect of the Invention] The top and bottom of the image which projects the top and bottom of the body of a video camera on a monitor temporarily even if reverse can be prevented from becoming reverse according to this invention, and if this video camera is the thing of VTR one apparatus, the top and bottom of the image recorded and reproduced can also be prevented from becoming reverse like the case of a monitor, as explained above.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] One example of this invention is shown, (a) is outline rear view and (b) is an outline top view.

[Drawing 2] It is the outline rear view used for explaining an operation of this invention.

[Drawing 3] It is the outline rear view for explaining the conventional thing.

[Drawing 4] It is the outline rear view for explaining the conventional thing.

[Description of Notations]

1 Body of Video Camera

2 Grip Section

8 Image Pick-up Side

13 Floor

14 Image Pick-up Section

15 Lens Section

16 Lobe

17 Pivot

18 Shaft

19 Monitor

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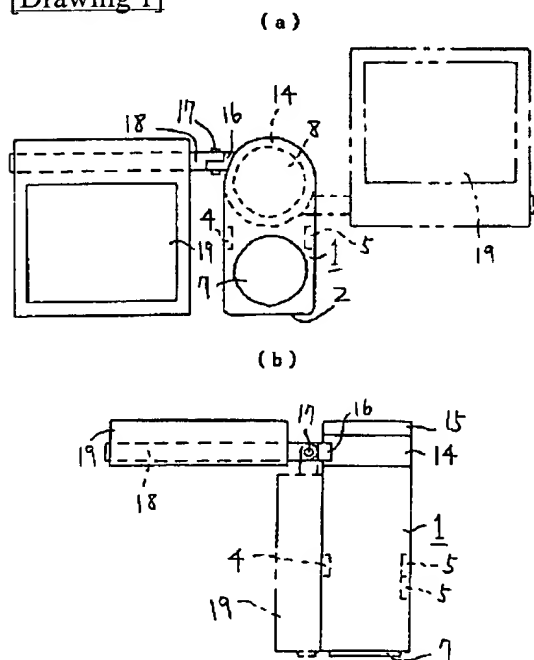
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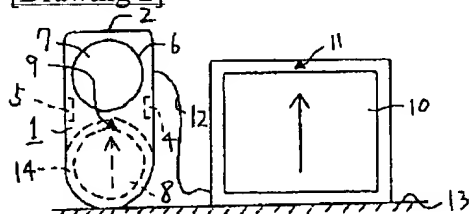
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**DRAWINGS**

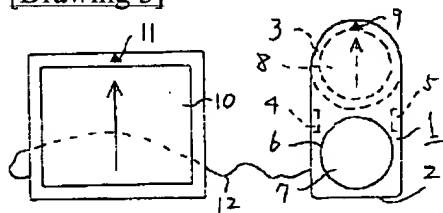
[Drawing 1]



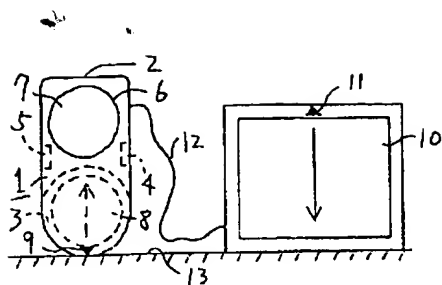
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]